Response

The Examiner's rejection of claims 1-60 is addressed herein below.

Section 112 Rejections

Claims 1-60 were rejected under 35 USC § 112 (second paragraph) as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner argues that the term "substantially reproduced" is a relative term that is not defined by the claim(s) and therefore, renders the claim(s) indefinite. The Examiner suggests that "[t]he specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art allegedly would not be reasonably apprised of the scope of the invention."

The test for definiteness under 35 USC § 112 (second paragraph) is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Ortho Kinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F2d 1565, 1576 (Fed. Cir. 1986). Here, the term "substantially" does not appear in all of the rejected claims, however, appears in claims 1, 4-9, 20-21, 30, 32, 37-39, 56, 58 and 60 to describe the reproduced projection view image. Even without regard to the specification, one of ordinary skill in the art (programming/graphics imaging/transmission) would appreciate the scope of this limitation to mean that the substantially reproduced projection view image is not identical to the projection view image. Even one with less than ordinary skill in the art could appreciate this meaning!

Nevertheless, the specification provides numerous examples of the intended breadth of the term "substantially" as it appears in the claims. For example, the specification clearly states that the GPU for the 3D graphics accelerator 114 may be used to perform bilinear interpolation, or other intended functions, to render the scaled-up image 116. Application ¶ 42. This process may also include the application of texture filters, which may result in a smoother,

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more continuous [scaled-up] image. *Id* In another example, the scaling factor may be increased, thereby reducing the amount of data transmitted until a desired interaction and performance are achieved. Application ¶ 47. In yet another example, the server **100** can remotely open various display connections as described in reference to step 512, which allows the server **100** to write raw memory from the 3D graphics accelerator **110** directly to multiple clients using different graphics memory resolutions and different scaling factors. Application ¶ 64. Accordingly, the scaled-down image may be processed on the client graphics accelerator **114** by varying the scale, data and resolution of the scaled-down image to substantially reproduce the projection view image in the form of the scaled-up image **116**. One of ordinary skill in the art would therefore, be further apprised of the scope of the term "substantially" in light of the specification. *See e.g., In re Mattison*, 509 F.2d 563 (C.C.P.A. 1975) (holding that the limitation "to substantially increase the efficiency of the compound as a copper extractant" was definite in view of the general guidelines contained in the specification); *and Andrew Corp. v. Gabriel Electronics*, 847 F.2d 819 (Fed. Cir. 1988) (holding that the limitation "which produces substantially equal E and H plain illumination patterns" was definite because one of ordinary skill in the art would know what was meant by "substantially equal"). In order to secure substantial correspondence between the claims and the specification, Applicant amends the specification under 37 CFR § 1.121(e).

Section 102(b) Rejections

Claims 1, 3-4, 12, 18-20, 24-26, 30-33, 37-38, 50-52 and 56-60 were also rejected under 35 USC § 102(b) as being anticipated by art referred to by the Examiner as "Applicant's Admitted Prior Art" or "AAPA." Applicant respectfully traverses the Examiner's reference to any art as admitted prior art, particularly in view of the fact that the same is referred to under the "Background of The Invention" and does not admit or refer to such art as "prior art." Even if the

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Examiner could establish that the cited art was, in fact, prior art described in a printed publication more than one year before the Application filing date as required under § 102(b), there are significant differences between the cited art and the present invention as explained further below.

Under 35 USC § 102, the Examiner must present evidence that a single prior art reference discloses every element of the rejected claims. The Examiner's analysis, however, provides little guidance as to which reference in paragraphs 11 and 12 of the Application meets this burden. Regardless, neither reference cited in paragraphs 11 and 12 of the Application, independently or in combination, meet the limitations found in the rejected claims.

For example, claim 1 recites a method for the remote display of graphical data, the graphical data representing a three-dimensional model of an object, the method comprising the steps of:

rendering the graphical data on the server to form a projection view image;

processing the projection view image on a server graphics accelerator to produce a scaled-down image having a transmission size less than the transmission size of the projection view image;

transmitting the scaled-down image from the server to a client;

processing the scaled-down image on a client graphics accelerator to substantially reproduce the projection view image; and

displaying the substantially reproduced projection view image on the client.

Without identifying the relevant description relied upon by the Examiner in paragraphs 11 and 12 of the Application, the Examiner concludes that the references described therein teach the limitations highlighted above in claim 1. The Examiner reaches the same conclusion, without

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any analysis, to reject independent claims 24, 37, 50, 56 and 60. Upon close inspection of paragraphs 11 and 12 of the Application, however, neither reference discloses the use of a server graphics accelerator and a client graphics accelerator—much less capable of performing the processing steps highlighted above in claim 1. In fact, paragraph 12 of the Application describes various disadvantages of the two references (OpenGL Performer and OpenGL Vizserver) relied upon by the Examiner.

In addition to the shortcomings of the references relied upon by the Examiner, corresponding references cited by the Applicant in the Information Disclosure Statement filed on August 22, 2003, highlight the same shortcomings. For example, paragraph 11 of the Application and pages 15-16 of the OpenGL Performer Programmer's Guide (Chapter 5) describe the use of "Dynamic Video Resolution" to reduce the size of the rendered image. There is absolutely no disclosure and/or discussion that this feature is processed by a server graphics accelerator as required by the limitations of claim 1. Afterwards, specialized video hardware enlarges the images to the original size using a technique known as bipolar filtering. Again, there is no disclosure and/or discussion that this specialized video hardware is a client graphics accelerator as required by the limitations of claim 1.

Moreover, paragraph 12 of the Application and pages 6-9 of the OpenGL Vizserver 3.1 Application White Paper describe specialized hardware in the form of multiple (5) compression modules that compress/decompress the frames of a rendered 3D graphics model. These compression modules reside at the client and server thus, reducing performance at each end when performing other necessary tasks and interacting with the 3D graphics model. Most telling, however, is the fact that each compression module uses two threads to perform the compression. As indicated in Section 3.1 of the OpenGL Vizserver 3.1 Application White Paper, a CPU is required for each of the two threads of each compression module.

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Consequently, the OpenGL Performer Programmer's Guide and OpenGL Vizserver 3.1 Application White Paper fail to disclose the use of a graphics accelerator to reduce/compress and enlarge/decompress the image. More importantly, the OpenGL Vizserver 3.1 Application White Paper specifically requires the use of an independent CPU for each compression module that resides on the server and/or client. As such, OpenGL Performer and OpenGL Vizserver require specialized hardware and/or software to process an imaged object that may be more efficiently processed using a graphics accelerator in the manner claimed by the present invention.

Although the OpenGL Performer and OpenGL Vizserver applications may provide standard graphics pipelines or graphics hardware similar to the graphics accelerators described in the present Application, their use in the manner claimed by the present invention is not disclosed in any way, shape or form. *In re Hack*, 245 F.2d 246, 248 (C.C.P.A. 1957) (holding the discovery of a new use for an old structure based on unknown properties of the structure may be patented as a process of using the structure).

Based upon the foregoing analysis, independent claims 1, 24, 37 50, 56 and 60 are patentably distinguished from the references cited by the Examiner. Because each of the dependent claims 3-4, 12, 18-20, 25-26, 30-33, 38, 51-52, 57-59 ultimately depend from one of the distinguished independent claims, these claims are also patentably distinguished from the cited references.

Section 103(a) Rejections

Claims 2, 5-6, 7, 8-9, 10-11, 13-17, 21-23, 27-29, 34-36, 39-43 and 52-55 were also rejected under 35 USC § 103(a) as being unpatentable over the alleged AAPA in view of *Shuping, Yagishita, Taha, Nakayama* and/or what the Examiner believes to be well known in the art. To the extent that the Examiner relies on official notice of what is alleged to be well known

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